REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action mailed May 8, 2006. Amendment and reconsideration of the application is respectfully requested.

The Office Action

The Examiner has withdrawn the previous grounds of rejection of the pending claims and cited new references in support of a new ground of rejection, unpatentability for failing to define nonobvious subject matter over the combined teachings of two particular references.

The claims of the application have been amended to more particularly define the novel features of the subject invention and to traverse the present claim rejections.

The Present Application

The present application is directed toward a method and system for detecting an ink stick jam in a solid to liquid ink phasing delivery system for supplying ink to a printer. An ink stick normally in a solid phase at room temperature is heated to a liquid state so that the liquid ink can be communicated to a print head. The phasing system includes a heater plate disposed to engage a solid ink stick and heat an engaging portion of the ink stick to the liquid phase. If the solid ink stick were somehow jammed and unable to contact the heater plate, during the normal ink melt duty cycle, not only could the print head reservoir run dry causing a catastrophic failure of the print job, but also, the continued application of power to elements of the heater can cause high temperature damage to the heater itself and to adjacent componentry. In particular, the print head could become clogged requiring expensive maintenance and repair with significant printer downtime.

A temperature sensing device associated with the heating plate detects the temperature thereof. A control system selectively supplies the power to the heater plate. The method comprises supplying a predetermined amount of power through the control system through the heater plate intended to achieve the desired melt rate of the ink stick during a phase change from solid to liquid. The desired melt rate is associated with a predetermined desired temperature of the heater plate. The temperature of the heater plate is sensed with a sensing device during the supply of power thereto. When a sensed

temperature of the heater plate varies from a predetermined desired temperature by a selected amount, indicative of an ink jam and non-engagement of the ink stick to the heater plate, the supply power is interrupted, the ink stick jam can be corrected and heater damage and printer ink starvation can be avoided.

The References

The Examiner's principal reference to Brooks is cited for generating a melting temperature of an ink stick which is monitored so that when the heater is determined to have a temperature selectively higher than the melting temperature, the supply of power can be interrupted. Applicants respectfully disagree with the Examiner's statements in support of the rejection for the principal reason that the Examiner has combined several heaters in the Brooks assembly, each having different purposes, and equated them with the single heater and temperature monitoring system of the subject application. More particularly, with reference to Fig. 1 of Brooks, the ink block 48 is heated by heater 50 to supply ink to ink supply reservoir 12. This reservoir is remote from the print head which has a second reservoir 60 associated with thermal fuse assembly 69 and a temperature detecting thermistor 71 so that the temperature of the ink in the second reservoir 60 is monitored so that in the case of overheating of the ink supply in the second reservoir, the power to the heater element 66 can be interrupted. In other words, Brooks teaches a system in which the temperature of the reservoir at the print head is monitored against overheating. There is no teaching or suggestion that monitoring the temperature of the ink block heater 50, primarily because there is no need for one since the liquid ink from remote reservoir 12 is supplied to the print head through a pressurized delivery system including carrier cable 15.

Accordingly, Brooks is completely silent of the situation where ink block 48 was unable to be heated by heater 50 to supply the reservoir 12. The temperature monitoring system at the second reservoir cannot detect an ink stick jam at the first reservoir.

The reference to Jones et al. discloses a drip plate design for a solid ink printer from the same type of system as the present application, indeed the applications are commonly assigned to Xerox. However, the Jones et al. application fails to teach or suggest a temperature monitoring system for a heater melt plate.

Accordingly, a combination of the two references would suggest a heater control

system for a reservoir at a print head, but lacks any teaching or suggestion of a temperature heater plate monitoring system for converting the solid ink to a liquid ink phase.

The Claims Distinguish Over the Combined Teachings of the References

The Examiner will appreciate that amendments have been made in independent claims 1 and 4 to better distinguish that the temperature monitoring features of the subject application concern the heater plate, not the ink reservoir.

Concerning the language objection to claim 4, the objection is assumed to refer to claim 2 and the suggested correction has been made.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1-6) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

No additional fee is believed to be required for this Amendment B. However, the undersigned attorney of record hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Deposit Account No. 24-0037.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Patrick R. Roche, at Telephone Number (216) 861-5582.

Respectfully submitted,

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July 6, 2006
Date

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